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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,951	12/19/2001	Xiaoxiao Zhang	CL/V-31599A	6417

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EXAMINER

LAVARIAS, ARNEL C

ART UNIT	PAPER NUMBER
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2872

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/22/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/025,951

Applicant(s)

ZHANG ET AL.

Examiner

Arnel C. Lavarias

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/27/06 has been entered.

Response to Amendment

2. The amendments to Claim 1 in the submission dated 10/27/06 are acknowledged and accepted.
3. The addition of Claim 48 in the submission dated 10/27/06 is acknowledged and accepted.
4. The Examiner again notes that no substitute oath or declaration was submitted in response to the objections to the substitute oath or declaration in Section 7 of the Office Action dated 7/18/06.
5. The Examiner further notes that for claims listed as 'cancelled', no claim text should be presented. See 37 CFR 1.121(c)(4). Thus, Claims 8-47 should only be listed as '8-47. (cancelled)'.

Response to Arguments

6. The Applicants' arguments filed 10/27/06 have been fully considered but they are not persuasive.
7. The Applicants argue that, with respect to newly amended Claim 1, as well as Claims 2-7 which depend on Claim 1, the combined teachings of Israel and Zhang et al. fail to teach or reasonably suggest using only one optical power at a time to form a clearly perceivable image along the wearer's line of sight, particularly at the fovea. The Examiner respectfully disagrees. Though Israel specifically discloses particular embodiments where the disclosed ophthalmic optical element deflects incident light away from a diseased macula (which includes the fovea) to a healthy and non-diseased portion of the retina (See for example col. 7, lines 64-67), Israel additionally discloses embodiments and applications where the disclosed ophthalmic optical element may be utilized to deflect light entering the eye onto a healthy portion of the retina, such as a healthy macula (which includes the fovea) (See for example col. 9, lines 19-25).
8. Claims 1-7, 48 are now rejected as follows.

Oath/Declaration

9. The substitute oath or declaration filed 7/29/05 is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

Non-initialed and/or non-dated alterations have been made to the oath or declaration. See 37 CFR 1.52(c). See un-initialed alterations made by inventor Ruolin Li on the signature page.

Claim Objections

10. Claim 48 is objected to because of the following informalities:

Claim 48 recites the limitation that the ‘...clearly perceivable image is the wearer’s line of sight, at the fovea’. However, it is noted that a ‘line of sight’ is a direction, and not an actual image. For purposes of examination, this limitation has been interpreted to mean ‘...said clearly perceivable image is *formed along* the wearer’s line of sight, at the fovea.’ Appropriate correction is required.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-6, 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Israel (U.S. Patent No. 6139145), of record, in view of Zhang et al. (U.S. Patent No. 5997140), of record.

Regarding Claims 1-5, and 48, Israel discloses an optical lens (See for example 60 in Figures 3-5) comprising at least one holographic optical element (See 66 in Figures 3-5) and at least one focusing element (See 64 in Figures 3-5), the holographic optical element characterized by an interference fringe pattern (it is noted that holograms are inherently comprised of interference fringe patterns), the holographic optical element further characterized as possessing substantially neutral focusing power (See col. 8, lines 19-46;

it is noted that the holographic optical element provides prismatic power), wherein the optical lens is a multifocal lens (See for example Figures 5, 9; col. 3, line 9-col. 6, line 36; col. 8, lines 19-56). Israel additionally discloses the optical lens being biocompatible (See col. 8, lines 1-18), the optical lens being a contact lens (See col. 8, lines 1-18), and the optical lens being a spectacle lens (See col. 8, lines 1-18), the optical lens being an intraocular lens (See col. 8, lines 1-18), the holographic optical lens element being a transmission holographic optical lens element (See for example col. 3, lines 8-18; col. 9, lines 26-36), and a clearly perceivable image being formed along the wearer's line of sight, at the fovea/macula (See for example col. 9, lines 19-25). Israel lacks the holographic optical element having a finite ray acceptance angle that diffracts up to 100% of incoming light when the Bragg condition is met, or the lens allowing the wearer to switch between optical powers. However, it is well known in the art of holography that only light of a particular range of wavelengths and of a particular range of angle of incidence will be diffracted by the interference fringes on a hologram, and that light outside of these wavelength and angle ranges will transmit through the hologram unmodified. For example, Zhang et al. teaches the use of a holographic optical element as part of an optical/ophthalmic lens (See for example Figures 1-2), such as a multifocal lens (See various figures; col. 2, line 66-col. 3, line 20; col. 17, lines 14-26), wherein the holographic optical element has a finite ray acceptance angle that diffracts up to 100% of incoming light when the Bragg condition is met (See col. 3, line 21-col. 4, line 23). In addition, Zhang et al. teaches the ophthalmic lens being a multifocal lens that may be actively switched between two or more optical powers (See Figures 1-2; col. 2, line 66-

col. 4, line 13; col. 17, lines 14-26). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the holographic optical element of Israel, have a finite ray acceptance angle that diffracts up to 100% of incoming light when the Bragg condition is met, and the lens allowing the wearer to switch between optical powers, as taught by Zhang et al., 1) to provide an active and highly selective means of modifying of the incident light (via diffraction), and 2) to allow for correction of ametropic conditions that are not easily accommodated by conventional corrective optical lenses, without exhibiting any optical interferences from the other optical powers of the lens.

Regarding Claim 6, Israel in view of Zhang et al. discloses the invention as set forth above in Claim 1, except for the holographic optical lens element being a transmission volume holographic optical lens element. However, Zhang et al. additionally teaches that the holographic optical element used as part of an optical lens may be a transmission volume holographic optical lens element (See col. 2, lines 20-36; col. 3, lines 12-20). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the holographic optical element of Israel in view of Zhang et al. to be a transmission volume holographic optical element, for the purpose of reducing the size (i.e. thickness) of the holographic optical element, while retaining a high degree of diffraction efficiency.

13. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Israel in view of Zhang et al. as applied to Claim 1 above, and further in view of Chang (U.S. Patent No. 4830441), of record.

Israel in view of Zhang et al. discloses the invention as set forth above in Claim 1, except for the holographic optical lens element being a reflective holographic optical lens element. However, it is well known in the art of holography that holographic optical lens elements may be fabricated to operate either in transmission mode or in reflective mode, depending on the holographic writing configuration used (i.e. whether the object and reference beams were incident on the same side or on opposite sides of the holographic recording medium). For example, Chang teaches optical elements for laser eye protection (See for example Abstract; Figure 3), wherein holographic optical elements (See for example 331, 332, 341, 342 in Figure 3) are utilized as part of an optical lens system (See 330, 340 in Figure 3) to provide protection for the eyes from stray laser light. In particular, the holographic optical elements are fabricated (See Figures 1-2) such that the reference and object beams are incident on opposite sides of the holographic recording medium (See 163 in Figures 1-2), such that the holographic optical elements acts as a reflecting element when incident light having a predetermined wavelength(s) and proper incident angle(s) strike the surface of the optical element (See for example col. 7, line 41-col 8, line 4). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have holographic optical lens element of the optical lens of Israel in view of Zhang et al. be a reflective holographic optical lens element, as taught by Chang, for the purpose of providing additional light filtering to protect the optical system and observer from spurious light noise and high light intensity levels.

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Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 9:30 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Arnel C. Lavarias
Primary Examiner
Group Art Unit 2872
12/19/06


ARNEL LAVARIAS
PRIMARY PATENT EXAMINER